

# **VARIABLES THAT INFLUENCE PUBLIC SUPPORT FOR TRANSPORTATION REFERENDUMS**

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## Introduction

The Atlanta region has experienced tremendous growth in its recent history, and with that has come increased traffic volume and congestion. Between 1990 and 1996, the region's population grew 16% (GRTA, 2003). In that same time period, the urban land area expanded 47%, after growing 25% between 1980 and 1990 (New Georgia Encyclopedia, 2008). Air quality became so poor as a result that it failed to meet air quality standards by the U.S. Environmental Protection Agency. To address this challenge, the Georgia Regional Transportation Authority (GRTA) was created in 1999, focusing on improving the region's transportation issues by focusing on mobility, air quality and land use.

However, GRTA did not fully address Atlanta's transportation problems. Atlanta is still struggling with poor air quality and traffic continues to increase, contributing to an increase of greenhouse gases and climate change. Also of growing concern are transportation funding and policy making, given the current economic and policy climate. Local tax revenue streams for public transportation are becoming more central and relied upon (CFTE, 2006). Georgia's Transportation Investment Act of 2010 is aimed at providing the region with an alternative funding source. In 2012, voters in the Atlanta, GA region will be deciding whether to implement a 1% sales tax which will be used to fund local and regional transportation projects. The tax revenue will be spent on transportation projects to relieve congestion, expand transportation options, create jobs, address safety needs, and improve air quality. According to the Georgia Department of Transportation, this tax is necessary because Georgia has under-invested in transportation, the motor fuel tax can only be used for roads and bridges, and state and federal funding are insufficient to meet our transportation infrastructure needs.

This policy has many environmental implications. Improvements to regional transportation can reduce traffic and increase transit usage, resulting in a local impact on air quality and land use. Globally, it can affect greenhouse gas emissions. Given the connection between transportation and its impact on the environment, it is important to see how public opinion can be leveraged to affect policy and thus have a positive impact on the environment. It is this link, between transportation and environmental issues, that provides a platform for the focus of this study. The thought is: this policy has significant environmental implications. Are voters' choices, then, influenced by how they value the environment? If so, can we learn more about it so that we can create policies that are widely supportive, rather than coercive?

This study investigates public acceptability and perceived effectiveness of allocating local revenue streams for transportation development in the metro region of Atlanta, GA. Drawing on previous psychological research on the influence of values on behavior and political science research on voting behavior, it assesses the influence of geographical, educational, and environmental orientation variables on future policy acceptability and effectiveness. While previous research analyzes the topic of referendum voting behavior by focusing on *either* attitudinal or contextual variables, the current study analyzes this topic by looking at both. This study also draws on non-academic research which has been recently conducted in the region, assessing voters' perceptions.

Based on a literature review, it was hypothesized that individuals with strong environmental values would be more likely to support a transportation referendum, as would individuals who have achieved higher levels of education and live in the urban core. In this study, participants were surveyed on their awareness of transportation problems, their personal norms, and their perception of how effective the passage of the Atlanta region's referendum will be in reducing traffic congestion, increasing travel

options and reducing greenhouse gas emissions. The results show strong support for the referendum among those who live closer to the urban core, feel a personal obligation to use public transportation, and are less affluent; the study also shows opposition from those who do not live near the urban core, do not feel a personal obligation to use public transportation and are more affluent. The data also show a difference in how these two groups prioritize the goals and benefits of such a policy. This study presents implications and recommendations for other cities and counties in the United States interested in implementing similar regional/local transportation taxes, including using targeted marketing, clearly communicating the benefits that will result from the investment, and ensuring transparency and accountability.

## Literature Review

Behavioral theory attributes behavior to beliefs and attitudes, which are shaped by values, as well as context, personal capabilities and sociodemographics (Guagnano, Stern and Dietz, 1995; Poortinga, Steg and Vlek 2004; Stern 2000). But there is little written on the link between environmental values and individual voting behavior in transportation referendums. To evaluate this research question, this literature review pieces together research from the fields of psychology and political science.

Researchers in the field of psychology recognize the need and have called for a broad, multidisciplinary approach in order to gain more insight into pro-environmental behavior (Poortinga, Steg and Vlek, 2004). Studying behavior can illuminate how voters make decisions and thus shape policy, which is important because policies can have a large effect on the environment due to the large number of people and organizations it affects (Steg, Dreijerink, and Abrahamse 2005; Stern 2000). It is furthermore important to take a comprehensive and multidisciplinary approach because there is such a broad range of variables that influence voting (Stern 2000).

Because not much research has been done on how environmental values affect voting on transportation initiatives, this literature review will focus on what is known about how environmental values affect behavior and specifically affect pro-environmental behaviors. This can enable us to encourage pro-environmental behaviors through policies that are publicly acceptable rather than relying on coercion to enable environmental protection (Karp 1996). When policies are seen as coercive, they receive less support; rather, individuals prefer policies which do not force them into changing their behavior (Steg Dreijerink, and Abrahamse, 2006).

To gain a better understanding of what might influence voting behavior on transportation initiatives, this literature review will investigate the following: what do we generally know about what influences behavior? What factors cause us to engage in pro-environmental behavior? There is considerable research on the topic of values and how they influence behavior, and so this review will then look at a comparison of the influence of values and context on decision-making regarding behavior. Then, this review will look at what factors influence how people vote on transportation initiatives and, finally, what factors influence voting on non-transportation-specific referendums.

### **Basics of behavior**

As will be discussed, there are many causes for why people vote the way that they do, but because voting is, ultimately, a type of behavior, it is useful to gain a general understanding of what influences behavior. A very simplistic explanation of behavior is the “ABC” theory: attitudinal (A) and contextual (C) variables produce behavior (B), and, as the influence of contextual variables decreases, the influence of attitude is greater (Guagnano, Stern and Dietz, 1995). What’s important to note is that focusing on only just the context or individual’s attitudes can result in a one-sided and thus incomplete understanding of behavior (Stern 2000, 418).

### Factors that influence pro-environmental behavior

Environmental concern has been observed as related to pro-environmental behavior. One researcher well-known for his work on values, Shalom H. Schwartz, has drawn a link between environmental concern and general values (Schwartz 1994). Higher environmental concern has been observed in populations that are younger, have achieved higher levels of education and are more liberal (Van Liere and Dunlap, 1980).

Awareness and responsibility are also linked to pro-environmental behavior. In order for an individual to act pro-socially, they must first be aware of the problem before feeling responsible for it or developing a personal norm for it; once they feel responsible, they will feel morally obligated to engage in pro-social activities (De Groot and Steg, 2009; Eriksson, Garvill, and Nordlun, 2006; Steg, Dreijerink, and Abrahamse, 2006).

A relationship has been seen between individuals who engage in pro-environmental behavior and possessing the values “self-transcendence” (are motivated to transcend selfish concerns and promote the welfare of others) or “openness to change” (follow their own intellectual and emotional interests in unpredictable and uncertain directions) (Karp 1996, 113-114; Stern 2000). Most relevant to this literature review is that individuals with self-transcendent values have also been shown to predict one’s likelihood to vote for a candidate or referendum which promotes environmental protection (Karp 1996). Openness to change has specifically been linked to transportation-related energy-saving measures (Poortinga, Steg and Vlek, 2004) and purchasing organic food (Karp 1996).

On the other hand, people will be less likely to engage in pro-environmental behavior if they value “self-enhancement” (enhance their own personal interests, even at the expense of others) and or “traditional/conservation” (are motivated to preserve the status quo and the certainty it provides in relationships with close others, and obedience, self-discipline, and family security) (Karp 1996; Stern 2000, 414). Moreover, self-enhancement has been shown to be negatively correlated to environmental political behaviors (Stern, Dietz and Guagnano, 1998, 993).

An important theory to introduce is Sterns’ Values-Belief-Norm (VBN) theory. This theory explores the connection between values, beliefs and behavior, suggesting that values influence beliefs, which influence perceived norms, which influence behavior. It focused on four value sets (altruism, egoism, traditionalism, and openness to change) and showed a relationship between altruism and openness to change with adopting pro-environmental personal norms. In one study, he was able to show that VBN predicted 35% of the variance in policy support for environmentalism (Stern 2000, 414). This theory was tested in other studies; Steg 2005 likewise found that VBN explained 33% of variance, while Eriksson (Eriksson, Garvill, and Nordlun, 2006) found that it explained 50% (although the authors felt that the study did not adequately consider contextual variables). Other factors that have been inversely linked to policy support include: if individuals feel that their freedom of choice is restricted, if the policy is not expected to deliver an effective solution or if the policy is perceived to be unfair (Steg, Dreijerink, and Abrahamse, 2006, 94).

While Stern’s findings are helpful to the research question at hand, they do not entirely answer it. In his 1999 study, he created a variable for policy support, which was comprised of three "Willingness to Sacrifice" items:

1. I would be willing to pay much higher taxes in order to protect the environment,



2. I would be willing to accept cuts in my standard of living to protect the environment, and
3. I would be willing to pay much higher prices in order to protect the environment (Stern et al 1999, 96).

In his 1998 study, environmental political behavior was comprised of 6 items: In the last 5 years, have you:

1. Signed a petition in support of promoting the environment?
2. Given money to an environmental group?
3. Boycotted or avoided buying the products of a company because you felt the company was harming the environment?
4. Voted for a candidate in an election at least in part because he or she was in favor of strong environmental protection?
5. Are you a member of any group whose main aim is to preserve for protect the environment?
6. In the last 12 months, have you read any newsletters, magazines or other publications written by an environmental group? (Stern, Dietz and Guagnano, 1998, 993).

Stern's variable for policy support is only partially relevant to an investigation of support for a transportation tax policy; only the first of the variable's 3 components is really applicable to the research question at hand. It can be argued that people who vote on a transportation initiative might not consider the other 2 components of the variable and so, therefore, it is not entirely appropriate to say that support of a transportation policy as discussed in the current research is the same as support for the other 2 components of Stern's policy support variable. Likewise, Stern shows a relationship between VBN and environmental political behavior, but his list of what qualifies as environmental political behavior is not analogous to the current research question. Research on VBN theory suggests that values influence pro-environmental behavior, in terms of supporting environmental policy. Therefore,

we can see that values do play a role in determining behavior and these researchers have linked values to policy support. While this is helpful for understanding how values impact voting on a transportation referendum, the research question is not wholly explained by these findings.

### **Values or Context?**

It is interesting and informative to have an understanding of how values influence beliefs and thus influence behaviors when trying to understand the factors which influence voting on transportation issues. However, in order to have a complete understanding of behavior, it is necessary to look at a range of variables, not only attitudinal but also personal, habitual and contextual (Stern 2000). For instance, context is heavily influential when behaviors are challenging or difficult (Eriksson, Garvill, and Nordlun; Guagnano, Stern and Dietz, 1995; Stern 2000). Still more variables to consider include individual opportunities and abilities and sociodemographics; focusing just on attitudinal variables can provide a limited view on behavioral motivations (Poortinga, Steg and Vlek, 2004).

According to Stern, “findings suggest that the more important a behavior is in terms of its environmental impact, the less it depends on attitudinal variables, including environmental concern” (Stern 2000, 416). For expensive or difficult behaviors, attention must be paid to contextual factors and personal capabilities (Stern 2000, 421). Therefore, it is important to understand contextual factors. The literature from psychology does not discuss much on the context surrounding transportation votes, however. Therefore, in order to address this, it is helpful to turn to the field of political science.

### **Factors that influence voting results on local transportation initiatives**

There are a number of factors that have been identified as having an influence on voting results of a transportation initiative, some of which are highly contextual. Even some of the factors which are more universal become contextual when broken down, as seen below.

The nature of the package impacts the vote on a local transportation initiative (Haas and Werbel, 2001). This can be broken down into package components such as if the initiative is for multimodal transportation (Haas and Werbel, 2001; Middleton 1998). Another important factor is the financing of the initiative: it is important to have a “realistic expenditure plan and... detailed earmarking of funds” (Beale, Bishop and Marley, 1996, 74).

Voters will also weigh the benefits that they perceive will be delivered by the initiative. Benefits directly to the voters are certainly one factor influencing their decision (Forkenbock and Stoner, 1984; Middleton, 1998). However, voters have been found to also support an initiative even if they will not directly benefit from it; they may support it based on the social benefits provided to others, as well as the environmental benefits the initiative will deliver (Forkenbock and Stoner 1984; Levine et al, 1999). Moreover, voters are influenced by the economic benefits that a transportation initiative will provide, if it provides benefits to local business and also provides transportation to jobs (Forkenbock and Stoner, 1984).

Another important factor that voters consider when voting on transportation initiatives is the current state of local agencies. The effectiveness of local government or the transportation authority/system plays a role in voters’ support of a transportation initiative (Forkenbock and Stoner 1984; Haas and Werbel 2001; Middleton 1998). The existence and usage of public transit facilities, especially in high-income areas, is another factor that can influence voters (Soot, Kartheiser and Wojtkiewicz, 1976).

The process that is used to develop the transportation package also affects voters' support of a transportation initiative. If voters feel like their opinions are considered during the selection of projects, they may be more apt to support it (Beale, Bishop and Marley, 1996; Haas and Werbel 2001; Middleton 1998). Likewise, if public officials and business leaders are involved in the development of the transportation package, it may be more likely to pass (Haas and Werbel, 2001).

Additionally, it is important to coordinate support from key individual in the community throughout the campaign. Public officials are one group that should be coordinated for support (Beale, Bishop and Marley, 1996; Haas and Werbel, 2001; Middleton 1998). Other key individuals are business leaders (Beale, Bishop and Marley, 1996; Haas and Werbel, 2001). Lastly, coordinating support from the voting public also contributes to the passage of a vote for a transportation initiative (Middleton 1998).

Characteristics of the tax will also affect voters' support. It has been seen that a vote is less likely to pass in communities with higher existing sales taxes (Haas 2000). Likewise, it is important that the "distribution of tax burdens, revenues and benefits are perceived as fair" (Beale, Bishop and Marley, 1996, 74); for instance, if a transportation initiative relies on a property tax, it may not be favored because that does not evenly distribute burden of cost throughout the community (Harmatuck 1976).

Haas and Werbel also observed that a number of factors tend to be highly correlated and, if present, can have an effect on other factors present. The factors they thus identified as obstacles to the passage of a vote (due to their correlation to other factors) are:

1. absence of a perceived traffic crisis that is seen as a high priority problem
2. the transit agency is perceived as being unable to use funding effectively and efficiently

3. public participation in the planning process is not extensive
4. the transportation package consists solely of rail transit (Haas and Werbel, 2001, 176)

Haas and Werbel note that it can be very difficult to generalize the factors mentioned above, for a number of reasons. First, it can be highly contextual; each referendum is affected by unique circumstances (Beale, Bishop and Marley, 1996; Haas and Werbel 2001). Moreover, some factors tend to be correlated and, when combined, can block passage of a voting. Factors which tend to be correlated include: the absence of a perceived traffic crisis that is seen as a high priority problem (also noted in Beale, Bishop and Marley, 1996); the “transit agency is perceived as being unable to use funding effectively and efficiently”; “public participation in the planning process is not extensive”; and “the transportation package consists solely of rail transit” (Haas and Werbel, 2001, 176). Another obstacle to generalizing contextual factors is that they may change over time and thus may not be comparable (Haas and Werbel 2001).

Lastly, and perhaps most importantly to understanding voting behavior, the presence of an effective opposition can render predictions rather useless. “In none of the eleven cases did a measure prevail against an organized, reasonably well-funded opposition” (Haas and Werbel, 2001, 197).

### **Factors that influence voting on referenda (of any kind)**

Ideology or party identification affects how people vote in referendums (Dahlberg, Mörk, and Sorribas-Navarro, 2011; De Vreese and Semetko, 2004). However, political affiliation does not always dictate voting behavior. It has been observed that “partisanship is only an important predictor of vote choice if

the political parties take a clear stand on the issue in question” (De Vreese and Semetko, 2004, 155).

Political affiliation can also hurt an election; voters may not support a referendum during an unpopular government or if they do not trust the government (De Vreese and Semetko, 2004, 156). Voters may also be dissuaded from supporting a referendum if they feel uninvolved in the “political decision-making processes” (De Vreese and Semetko, 2004, 158).

Knowledge of and interest in political issues has been seen to affect voting on referendums. As can be expected, there is a link between interest in and support for the topic; however, if the topic is not seen as salient to the voters, they may not support it (De Vreese and Semetko, 2004). It has also been seen that interest in a topic “is an antecedent of knowledge, which is a condition for making informed decisions and for supporting candidates’ proposals” (De Vreese and Semetko, 2004, 158). Interestingly, it has been observed that “voter knowledge is sometimes higher in referendums than in candidate elections” (Qvortrup 2005, 42). This finding is not necessarily consistent; Magelby finds that those who vote on referendums usually are not as informed on the topic and that they tend to vote in an ad-hoc, uninformed fashion, making snap decisions (Magleby 1984). However, he acknowledges that, on the other hand, if an issue is particularly salient, it can improve the information level of voters.

Another important factor influencing voter support of referendums is the campaign. In fact, De Vreese and Semetko postulate that the campaign may be particularly influential on voting in referendums because “traditional party politics are potentially less important (in referendums)” ((2004, 153). They also observe that there are many campaign characteristics which influence voting, including:

- exposure to certain news outlets
- content and tone of the coverage
- information in the final weeks of the campaign

It is debated how much an impact the campaign has on the vote; while some see it is the most powerful influence, it may be just as important that the campaign be aligned with the voters' position (Qvortrup 2005, 152).

## **Conclusion**

The literature from the fields of psychology and political science reveal a common understanding that many factors influence behavior. These factors seem to fall into the categories of attitude (values and beliefs), habit, personal (knowledge and capabilities), and context (political, economic and spatial).

However, very little research has been done directly on the question of: do environmental values influence how one votes on a local transportation initiative? The literature from psychology observes how these four factors influence behavior, and also touches on the subject of policy acceptance, but does not present strong linkages between values and voting on transportation issues. Political science literature that focuses on the specific topic of local transportation initiative voting restricts its observations to the contextual factors. As previously noted, however, it is important that a broad perspective be taken when evaluating the factors that influence voting, because focusing only on contextual or attitudinal factors will provide a limited understanding of the factors and will thus be misleading (Poortinga, Steg and Vlek, 2004; Steg Dreijerink, and Abrahamse 2005; Stern 2000).

As seen in this review of the literature, little attention has been paid to the factors which affect voting behavior on local/regional transportation referendums. This is important for several reasons. First, it is becoming more prevalent throughout the US to use special-purpose sales taxes to fund transportation projects due to reduced funding from state and federal funders. Another reason it is important to look into this topic is because a better understanding of support or opposition to transportation referendums

could help to increase support; if municipalities can better understand sources of opposition, they can revise their referendums so that they reflect the public's interests and values. Lastly, it is interesting to look at factors which influence voting behavior on transportation referendums because, traditionally, these 2 topics have been looked at separately. A marriage of literature from the disparate fields of psychology, political science and planning can provide new or more comprehensive insights into creating policy which is more widely supported by the public.

The research which will be discussed in the pages of this report will give a new perspective on this topic. It will look at demographic characteristics and personal values and explore the possibility that voting behavior may be influenced by values and behaviors related to transportation and environmental issues. The specific values and behaviors which will be discussed have not previously been included in previous referendum research and may provide additional insight into voting behavior.

## **Methodology**

In September 2011, an electronic survey was disseminated via email containing questions about the transportation referendum in the Atlanta region in July 2012. The survey was distributed by Audrey Leous, a student at Georgia Tech, and Nora Davis, a student at the University of California-Irvine. The survey was primarily developed by Nora for another research project which compared results from Atlanta with results from Los Angeles. The survey was distributed in the Atlanta region via snowball sampling, a technique in which survey participants recruit acquaintances for the survey; as participants forward the survey to their acquaintances, the sample size grows, like a snowball. This method was used because it was the most cost-effective way to disseminate the survey. In Los Angeles, voters' email addresses are collected on voter registration forms and thus available to the public; this is not the case in Atlanta. The survey was therefore sent to the researchers' personal contacts and listservs.



**The idea of implementing a small increase on the sales tax in order to pay for transportation in the metro Atlanta region is up for a vote in 2012. Supporters of the idea say that it will eliminate traffic congestion in the Atlanta region. Opponents of this idea are reluctant to pay an additional tax and doubt whether the cost of the tax is worth the alleged benefit that the transportation projects will bring to the region. Do you favor or oppose this idea?**

- Favor
- Oppose

**Please indicate the degree to which you agree or disagree with the following statements, where 1 = strongly disagree and 5 = strongly agree:**

- I feel a strong personal obligation to take public transportation if it is available to me.
- I feel personally obliged to use public transportation as much as I can
- I feel morally obliged to use public transit, regardless of what others do
- If a metro stop was near me, I would feel morally obliged to take it
- I feel obliged to bear in mind the environment and nature in my daily behavior

**Please rate the importance of each of the following as a measure of how much each is a guiding value in your life:**

- Protecting the environment, preserving nature.
- Respect the earth, harmony with other species.

**Please prioritize from 1st to 11th (1st = the most important) which of the following areas are important in order for this program to be effective:**

- Protecting the environment (e.g. reduced greenhouse gases)
- Reducing traffic congestion
- Saving money (for you personally)
- Creating revenue (for the government)
- Improving health (e.g. air quality)
- Expanding travel choices
- Improving the economy
- Reducing stress
- Reducing dependency on foreign oil
- Reducing travel time
- Enhancing communities

**What is the highest degree you have received?**

- High School Diploma
- Associate
- Bachelor
- Masters
- Post Graduate

**Income**

- Less than \$25k
- \$25 - 50k
- \$50 - 100k
- \$100 - 200k
- \$200 - 500k
- \$500k+

**Age**

- 18 - 29
- 30 - 44
- 45 - 59
- 60+

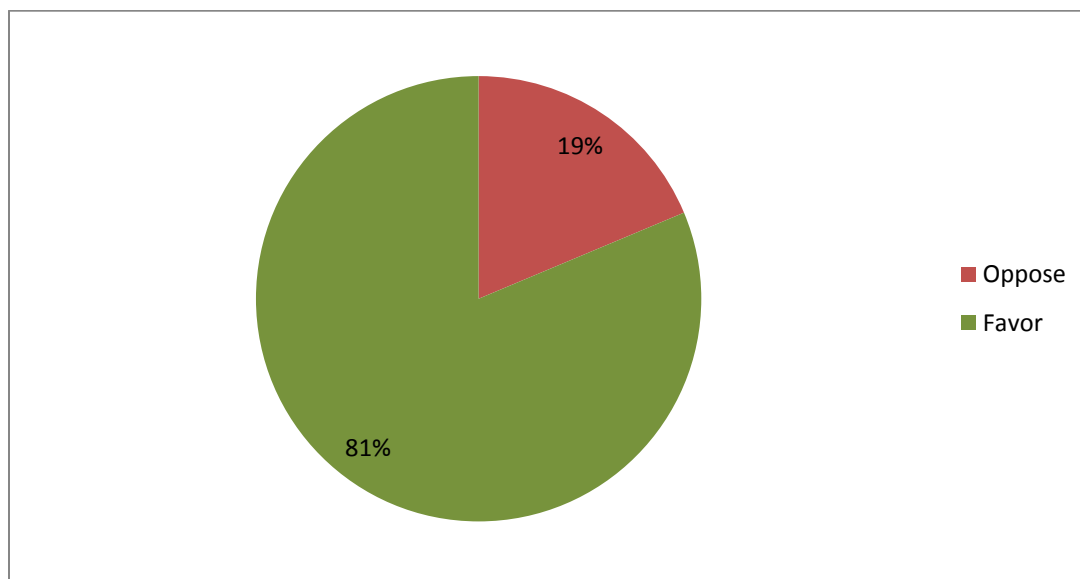
**Table 1. A Selection of survey questions.**

Survey results were collected throughout October, and the survey was closed mid-November 2011. Via snowball sampling, 110 individuals responded to the survey. The data were analyzed using descriptive statistical methods and a geographic information system.

## Findings and Results

This study explores the influence that geographical, educational, and environmental orientation variables can have on transportation policy acceptability. The hypothesis for this study is that individuals with strong environmental values are more likely to support such a policy, as would individuals who have achieved higher levels of education and live in the urban core. To understand the impact that these variables have, this study asked survey participants about their personal norms, their values, and their priorities for such a policy, as well as collected demographic information.

Figures 1 through 3 below provide general information on the survey respondents. The majority of survey participants responded that they are in support of the transportation referendum.



**Figure 1. Results from survey question "Would you support the vote on the transportation referendum?" (number of respondents (n) = 77)**

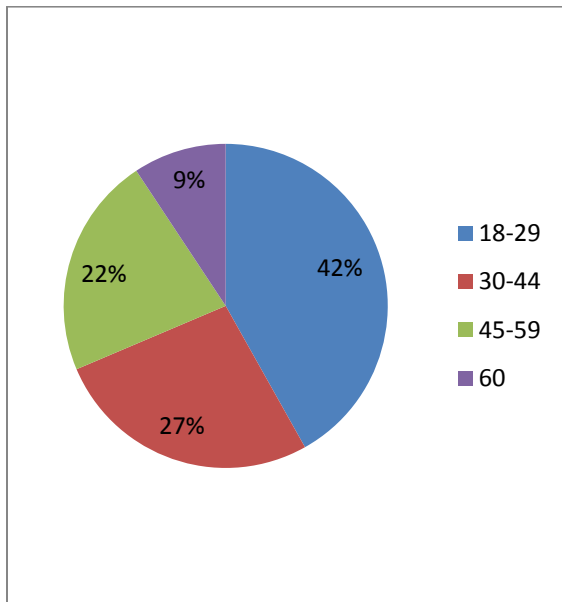


Figure 2. Age distribution of survey respondents.

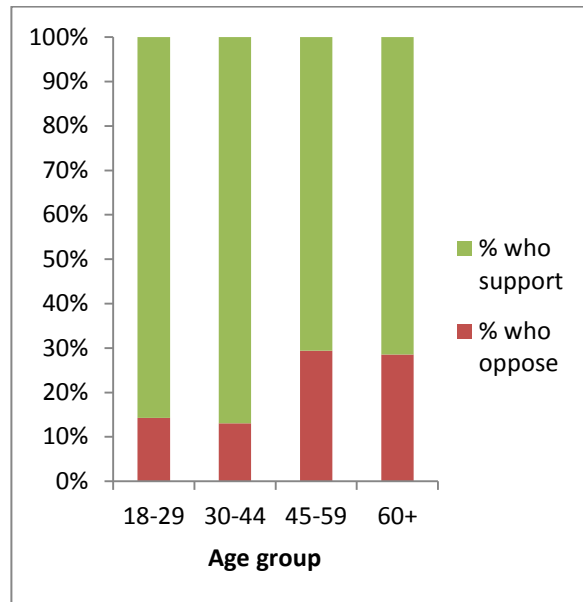


Figure 3. Voting by age group.

### Research question 1: Effect of location on support of tax

What effect does location have on one's support of a referendum? Respondents' zip codes are used to assess this research question. The map below demonstrates the geographic distribution of votes:

## Support and opposition to referendum: geographic distribution of votes

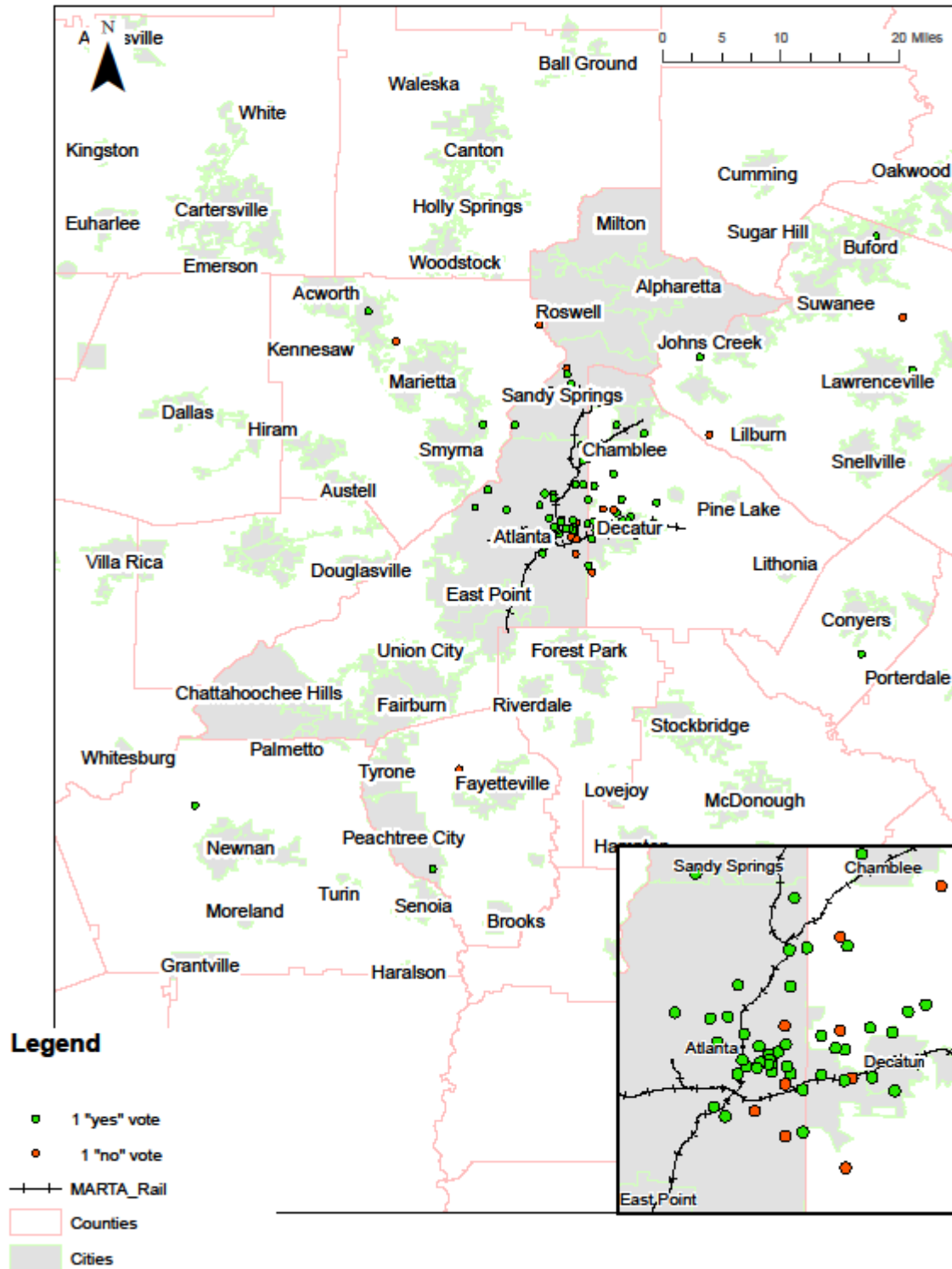
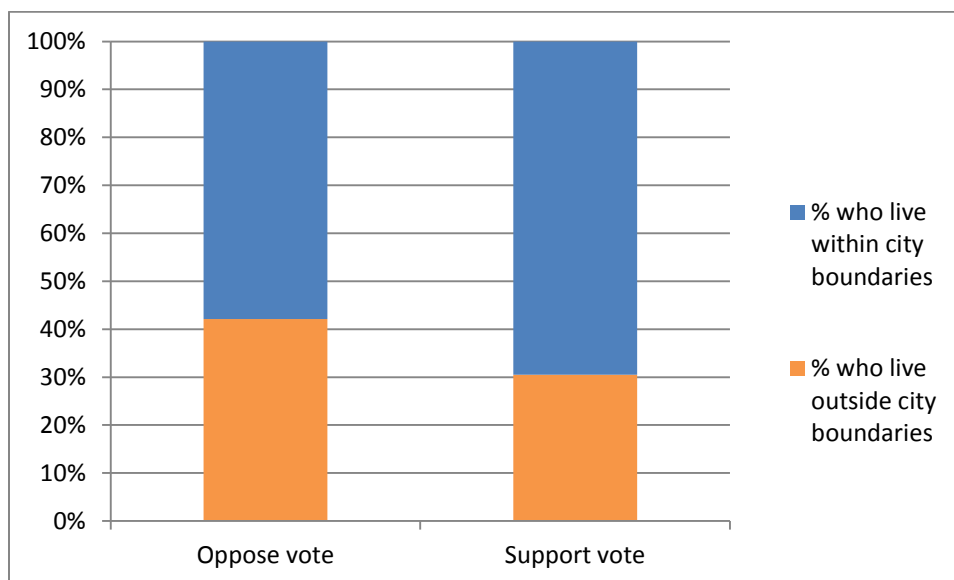


Figure 4. Map showing survey respondents' residential zip codes.

As expected, this map shows clustering around the urban core. This distribution is likely due to the survey method. The most efficient way to conduct this study was to disseminate the survey to listservs and individuals to whom the researchers already had access, utilizing snowball sampling (asking survey respondents to refer those they know to take the survey) to gain more survey respondents. The largest listserv that the researchers had access to was through Georgia Tech, many of whom are likely to live near campus.

Several observations may be made when evaluating the geographical distribution of voting. First, respondents who are in opposition to the vote seem to be more widely distributed than respondents who support the vote. Those who support the vote seem to be located more closely to the urban core, as seen on the map and below in Figure 5.

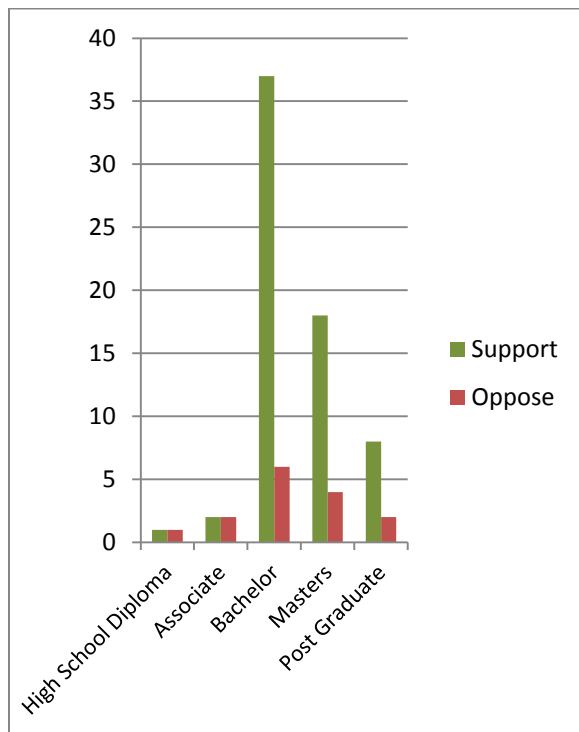


**Figure 5. Geographic distribution of votes.**

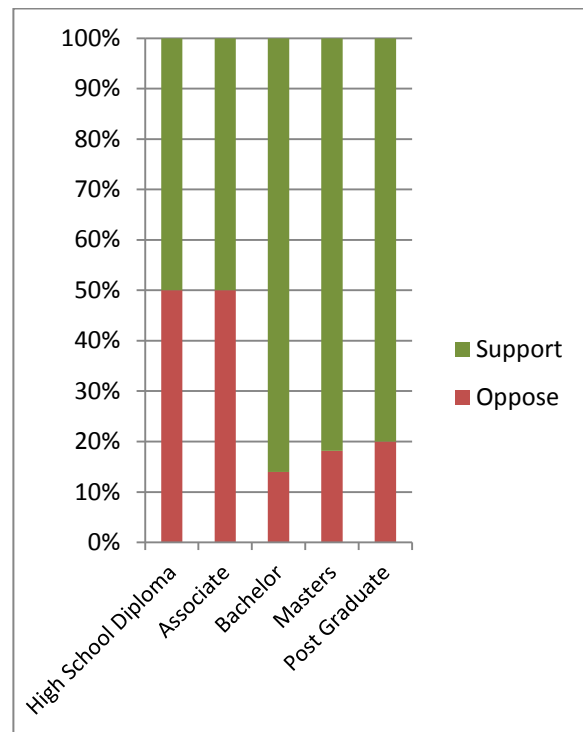
These data suggest that urban dwellers are more likely to support a transportation referendum than those who live farther from the city center. This may be due to factors such as access to transit or disagreement about revenue spending (e.g., that more revenue will be spent on projects in the city than in their own area).

## Research question 2: Effect of education on support of tax

Can the level of education that an individual has attained be used to predict an individual's intention to support a transportation referendum? To assess this question, respondents' level of education is compared with their support of the referendum, seen below in Figures 5 and 6.



**Figure 6. Survey respondents' level of educational attainment.**



**Figure 7. Survey respondents' level of educational attainment.**

It is difficult to draw any definitive conclusions about the relationship between education and inclination to support a transportation referendum. The results suggest that there is little difference between voting patterns among people who have attained lower levels of education. In comparison, the data show those with a Bachelor's degree or higher are more likely to support the transportation referendum.

One possible reason for these results is that, as discussed in the literature review, those who are more highly educated tend to support this type of vote. Generally, it can be assumed that those who have achieved higher levels of education are more aware of current events and local financial/political issues. Perhaps these data show that those with more education (i.e., those who are more aware of local issues) better understand the implications of the referendum being passed. They may support the usage of a sales tax to support transportation projects because they believe that it will have a positive impact on the region. They may also be more aware of the environmental impacts of transportation and thus willing to contribute to have a positive impact on this issue.

It is difficult to assess, through this survey question alone, whether survey respondents are in support of the referendum due to their awareness of the environmental impacts of increased funding for transportation projects. However, as will be discussed in the following section, this may be playing a role, as many respondents demonstrated their commitment to environmental values.

### Research Question 3: Effect of feeling of obligation to use public transportation on support of referendum

Thus far, this research has evaluated whether voters' support of a transportation referendum is influenced by geographical location or education. This variable -- Does one's feeling of obligation to use public transportation predict one's intention to support a transportation referendum? -- gets to the question of the influence that values have on voting for transportation issues. Is there a relationship between the obligations that one feels towards public transportation and their support of it?

To assess this question, respondents were asked to score the extent to which they agree with the following questions about feelings of obligation to use public transportation:

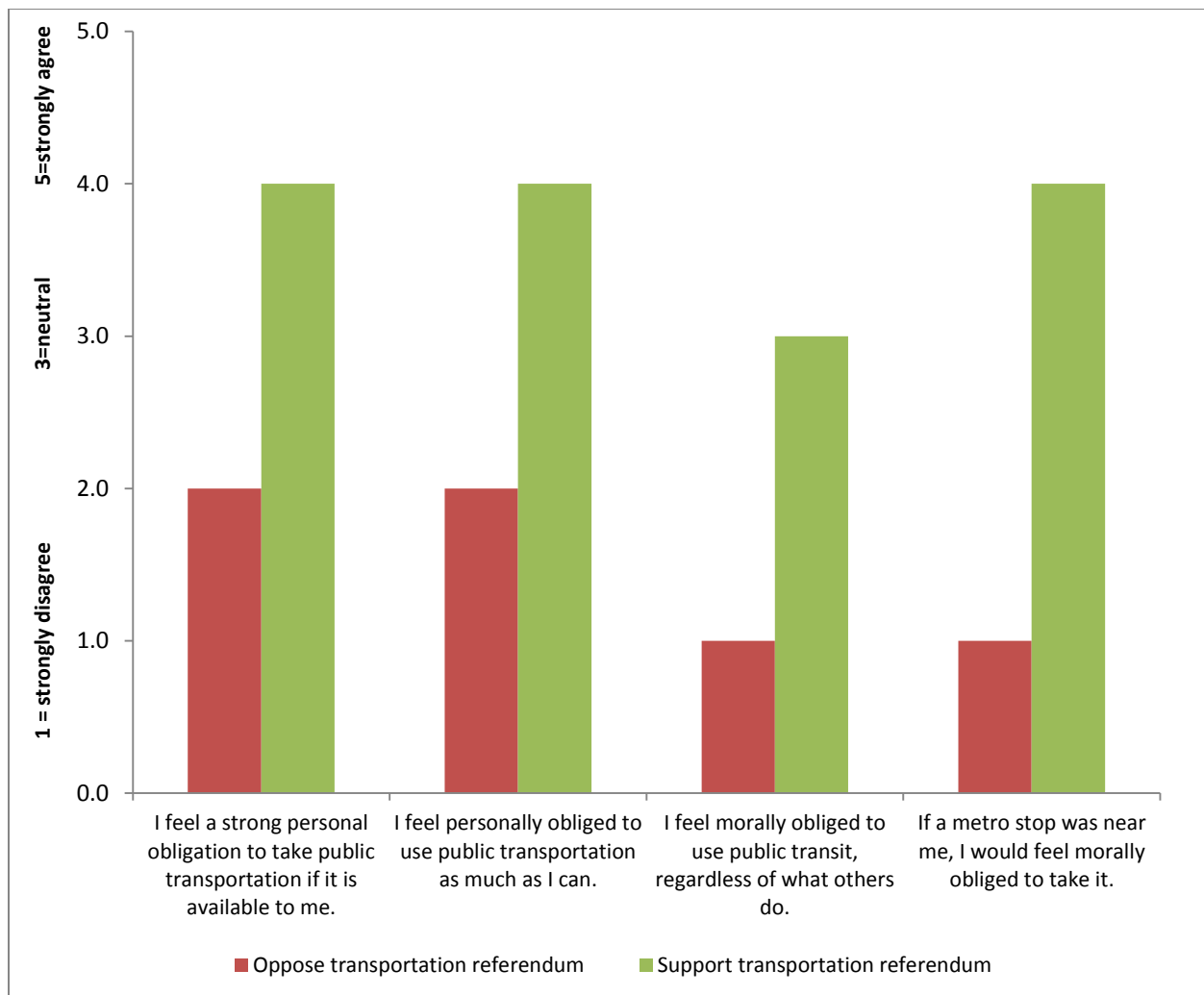
- I feel a strong personal obligation to take public transportation if it is available to me.
- I feel personally obliged to use public transportation as much as I can.
- I feel morally obliged to use public transit, regardless of what others do.
- If a metro stop was near me, I would feel morally obliged to take it.

Respondents were also asked to score the degree to which they agreed with the following statements:

- I feel obliged to bear in mind the environment and nature in my daily behavior.
- Protecting the environment and preserving nature is a guiding value in my life
- Respecting the earth and achieving harmony with other species is a guiding value in my life

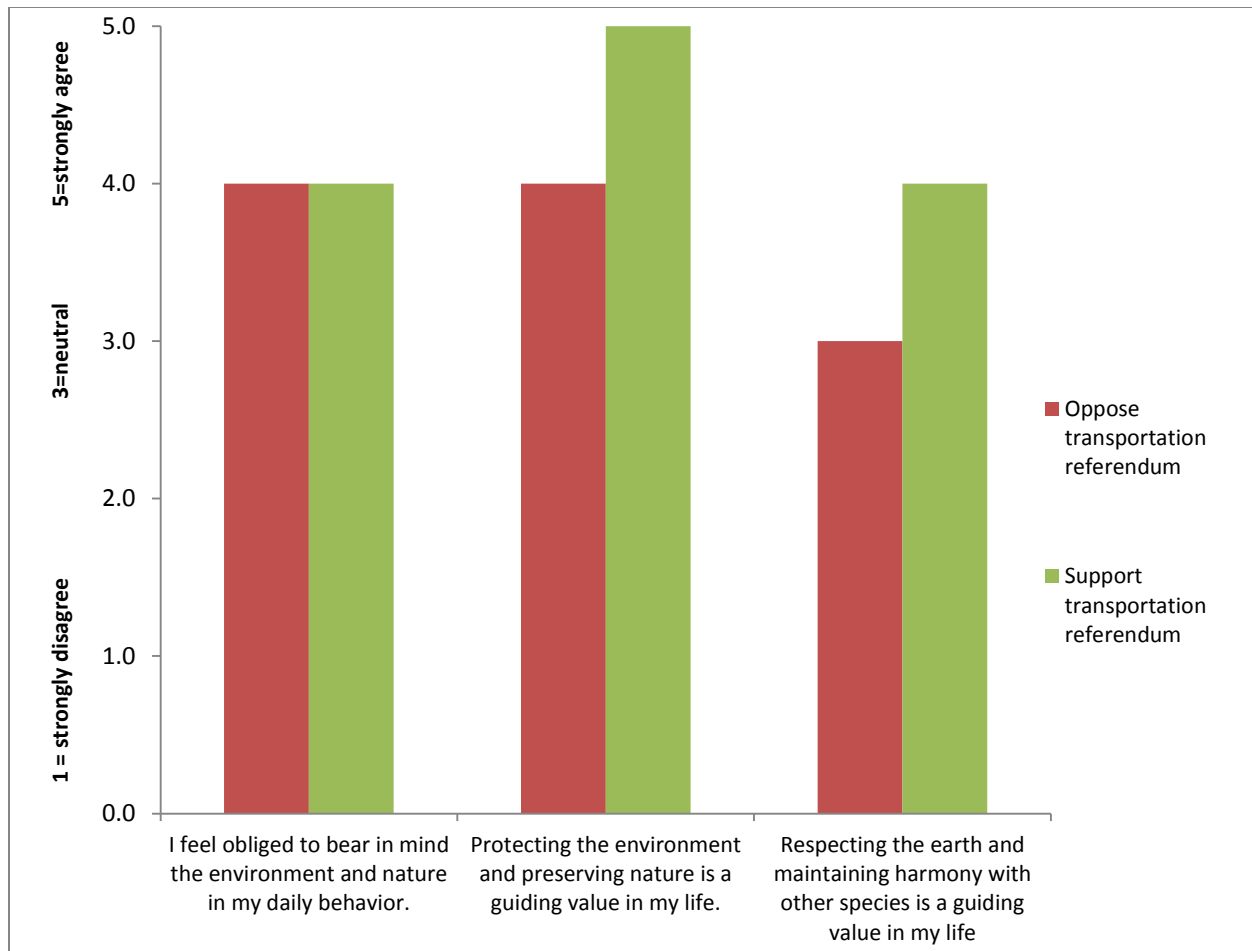
The responses to these questions can be seen in Figures 6 and 7.





**Figure 8. Mode of survey participants' responses to survey questions about of feelings of personal obligations to using public transportation.**

Figure 8 demonstrates a significant difference between those who support the referendum and those who do not. Those who do not support it do not feel personally obligated to utilize public transportation, while those who are in support do feel a strong obligation to use public transportation. Therefore, we may construe that a feeling of obligation to use public transportation may lead to support for this kind of policy.



**Figure 9. Mode of survey participants' responses to survey questions about environmental values.**

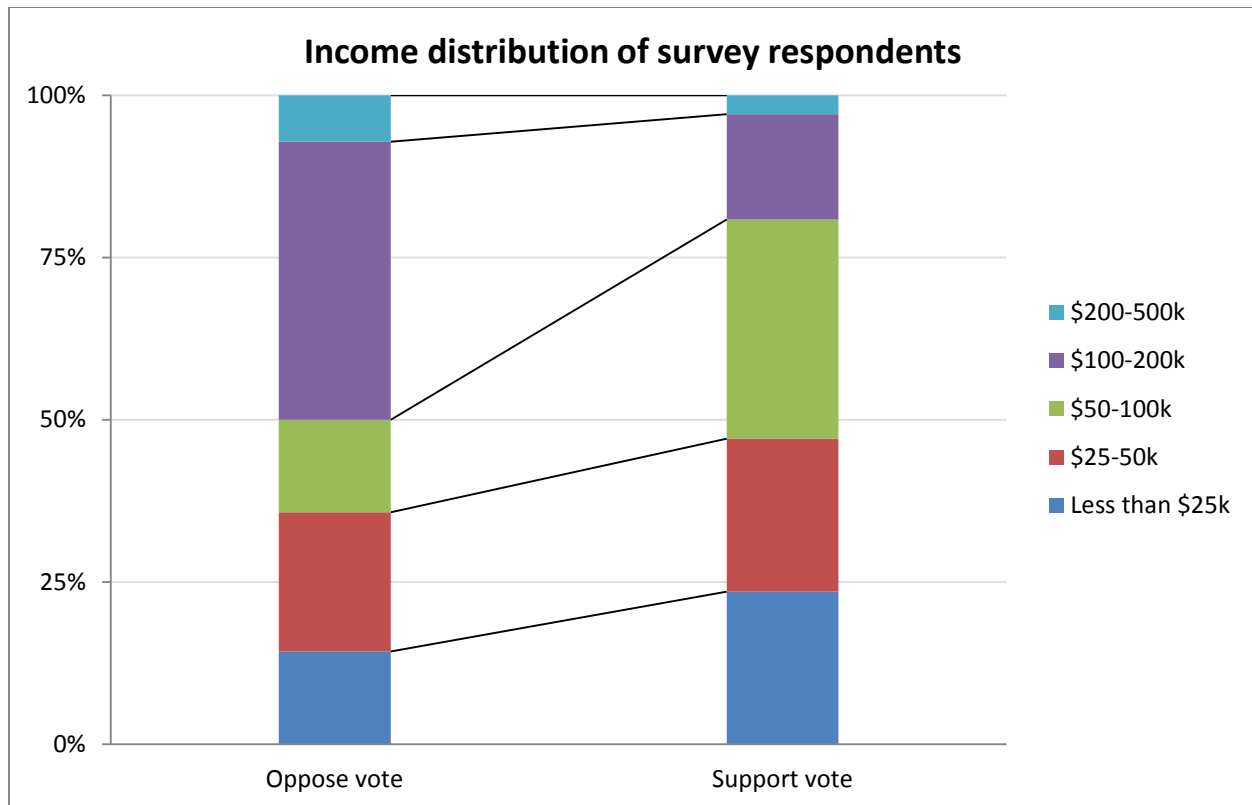
Figure 9 provides insight into survey respondents' environmental values. There is very little difference between self-reported environmental values. Both those in support of and those opposed to the referendum feel an obligation toward the environment and protecting the environment. Those who support the referendum claim respecting the earth as a guiding value, whereas those who do not support the referendum neither agree nor disagree that it is a guiding value in their lives.

As Figures 8 and 9 show, individuals who do not feel a personal obligation to use public transportation are less likely to support a transportation referendum, but they do claim to feel an obligation to bear in mind the environment in their decisions. Several conclusions may be drawn from this. First, these

responses could be influenced by research biases such as self-report bias (in which actual/observed behavior differs from one's self-report) or social desirability bias (in which people answer questions in a way so that they will be viewed favorably). They may claim to value the environment but the claim may not be consistent with their actions. Another conclusion is that those who do not support the vote do not consider the use of public transportation to be an action which demonstrates environmentally-responsible behavior, whereas those who support the vote may equate using public transportation with being environmentally-responsible. Perhaps they do in fact highly value it, but do not feel it to be relevant to this issue, or at least relevant enough for it to influence their decision. It is difficult to determine exactly which is more accurate.

#### Other findings of interest

The data show other interesting trends. For example, Figure 10 shows the breakdown of respondents' income levels and whether or not they support the vote. This shows that those who oppose the vote are generally more affluent than those who support the vote.



**Figure 10. Distribution of survey respondents' income (In opposition to the referendum: n = 14. In favor of the referendum: n=68).**

This is an interesting finding. It could be due to several reasons. Having more money, they may be some of the respondents who live farther out and do not feel that they will benefit from the projects which will be funded. They may also be less apt to support additional taxes. Those who are less affluent may rely more on transit and therefore support policies which invests in transit.

Respondents were also asked to rank a number of factors, indicating which they believe are the most important factors in judging the effectiveness of the tax. The results in Table 2 below are interesting. While those who oppose the vote indicate that protecting the environment is important to them in their daily life, they do not indicate that it influences their decision about the referendum. In order for the sales tax to be effective, these voters are more concerned about mobility and foreign relations. Both groups, however, feel that increasing travel choices is important.

<p><b><u>Those who favor the vote:</u></b></p> <p>Ranked these the “Most Important”</p> <ul style="list-style-type: none"> <li>• Protecting the environment (e.g. reduced greenhouse gases)</li> <li>• Reducing traffic congestion</li> <li>• Expanding travel choices</li> </ul> <p>Ranked these “Least important”:</p> <ul style="list-style-type: none"> <li>• Saving money (for you personally)</li> <li>• Creating revenue (for the government)</li> <li>• Reducing stress</li> </ul>	<p><b><u>Those who oppose the vote:</u></b></p> <p>Ranked these the “Most Important”</p> <ul style="list-style-type: none"> <li>• Expanding travel choices</li> <li>• Reducing dependency on foreign oil</li> </ul> <p>Ranked these “Least important”:</p> <ul style="list-style-type: none"> <li>• Protecting the environment (e.g. reduced greenhouse gases)</li> <li>• Reducing traffic congestion</li> <li>• Creating revenue (for the government)</li> </ul>
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**Table 2. Survey participants’ response to survey question regarding aspects of the referendum which are the most important in order for it to be effective.**

The findings in Table 2 align with the results of the survey questions regarding environmental values.

Perhaps those voters do not see this as an environmental issue or that the environmental benefits are not worth supporting it.

### **Conclusion of Findings**

This study focuses on the variables that influence voting on transportation referendums. The hypothesis is that support is more likely among individuals who exhibit with strong environmental values, have achieved higher levels of education and live closer to the urban core.

These data show that those who support the referendum tend to live closer to the city center, are highly educated, feel a personal obligation to use public transportation, feel obligated to bear the environment in mind in daily behavior, feel that protecting the environment guides their decision-making, and are less affluent than those who do not support the referendum. On the other hand, those who oppose the referendum tend to live farther out from the city center than those who are in favor of the referendum,

do not feel a personal obligation to use public transportation, do feel obligated to bear the environment in mind in daily behavior, feel that protecting the environment guides their decision-making, and are more affluent. Both groups feel that it is important to expand travel choices yet their other priorities differ.

There are a few conclusions that could be drawn from these findings. The difference of priorities, as seen in Table 2, and the similar levels of environmental concern as seen in Figure 9, suggest that perhaps some people do not see the transportation referendum as an environmental issue. Those who are not in support of the referendum may view it as a strategy for addressing mobility (as evidenced by the priority to increase travel options), or foreign policy (to wean us off foreign oil), where people who do support it do view it as an environmental issue. Or, perhaps environmental values just simply do not have a strong influence on some individuals' voting.

The findings about personal obligation are very interesting. These differences could be due to transit accessibility. The data show that those who do not support the referendum live farther from the urban core. Perhaps they do not feel a personal obligation towards public transportation because it is not a viable option for them and are not willing to support the referendum because they do not want to spend money on transit if they do not utilize it.

## **Discussion and Recommendations**

Research from the fields of psychology and political science show that both attitudinal and contextual variables influence voting behavior. Stern's Values-Belief-Norm theory says that values influence behavior, which influences norms, which influences behavior. Specific values have been identified as

influential and are particularly relevant to this research, including environmental concern, feelings of personal obligation and self-transcendence.

Values play a role, in that they influence attitude, but the context plays a huge role regarding how people act. Research has shown that a number of contextual variables influence how people vote on transportation referendums:

- The nature of the package – projects on the list; how the funding will be spent; financial accountability
- The benefits and costs – personal, social, environmental, economic
- Reputation of local agencies – administration and existing facilities
- The process – if the public and local officials are involved in giving input
- Organization – getting support a variety of stakeholders, building coalitions, marketing
- Nature of the tax – state of existing sales taxes, the distribution of the burden of the tax
- Combinations of above factors – particularly of the following:
  - Perception of current traffic crisis
  - Reputation of local agencies
  - The extent of public involvement in the process
  - The mix of projects to receive funding

Research on general voting identifies additional variables which may influence voting:

- Partisanship
- Reputation of government
- Saliency – this is very salient
- Prevalence of campaign

In addition to academic research from psychology and political science, there are several studies which have been conducted in the Atlanta region specifically pertaining to the July 2012 regional sales tax referendum. These studies highlight voters' preferences regarding which kinds of projects should receive funding and how the process of allocating funding should occur.

Research from Transform Metro Atlanta, the nonprofit entity which is managing the campaign for the referendum, reports the following as voters' priorities:

- Job creation and retention

- Reduce traffic/travel time in order to improve
- Funding to go to projects which are selected fairly; to be distributed fairly; to be allocated transparently; to be distributed to a variety of types of transportation projects; to be spent on existing facilities than creating new ones; to go to projects which will be completed within 10 years
- Accountability in allocation of funding and project implementation
- Public input/choice (Transform Metro Atlanta, 2012)

The A. L. Burruss Institute of Public Service and Research at Kennesaw State University also conducted a survey to identify voters' interests. According to their survey, voters ranked the following as the best reason for investing in transportation alternatives:

- Reducing traffic congestion 41%
- Reducing dependency on foreign oil 13%
- Support economy 9 %
- Expand travel options 9% (A. L. Burruss Institute, 2011)

The data from the Burruss Institute contradict the findings found in the current study, which show that voters who oppose the referendum feel that expanding travel options is most important while reducing congestion is least.

Preferences varied by county. The northern counties more highly ranked traffic congestion as the best reason for investing in transportation; counties to the south of Atlanta thought it was important, but also thought that reducing dependency on foreign oil, supporting the economy and expanding travel options were important. Protecting the environment was seen as important only to voters of the City of Atlanta and Dekalb County, according to the Burruss study. However, reducing traffic congestion was still the top priority in all counties.

The Atlanta Regional Roundtable conducted an extensive telephone survey in 2011 and identified the following:

- Widespread, significant support for transportation services for older adults



- Great support for new transit services
- Mixed support for maintenance of existing transit
- Moderate support for Interchange improvements ("improve traffic flow")
- Little support for road widenings

Also in 2011, the Civic League for Regional Atlanta conducted an event in which attendees were surveyed on their preferences:

	%
New Transit	32
Technology, safety and system maintenance	20
Bike/pedestrian	16
Interstate interchanges	12
Road widening	7
Bridge replacement	4
Freight	3
Other	3
Aviation	2

**Table 3. Ranking top three choices for the region. Source: Civic League of Atlanta, 2011.**

The aim of this report was to see if there was a link between voting behavior on a transportation referendum and individuals' environmental values. As discussed, protecting the environment was reported as a value by both those who support and those who oppose the referendum. However, the survey also revealed that voters who do not support the referendum felt that protecting the environment was least important in order for the TSPLOST to be effective, as seen in Table 2 which shows' survey respondents' priorities.

As seen from the review of academic literature as well as recent studies which have been conducted in the Atlanta region, there are a number of variables which will influence voters in July 2012. The data gathered from this report further illuminate voters' interests. They show that people who support the referendum tend to live closer to the city center, are highly educated, feel a personal obligation to use

public transportation, feel obligated to bear the environment in mind in daily behavior, feel that protecting the environment guides their decision-making, and are less affluent than those who do not support the referendum. On the other hand, those who oppose the referendum tend to live farther out from the city center than those who are in favor of the referendum, do not feel a personal obligation to use public transportation, do feel obligated to bear the environment in mind in daily behavior, feel that protecting the environment guides their decision-making, and are more affluent. Both groups feel that it is important to expand travel choices yet their other priorities differ.

It is difficult to say with confidence that voters in Atlanta are in support of the referendum. The survey population in this study, though heavily in support of it, is likely skewed due to the sample method. But considering the factors which previous research has identified, and evaluating the characteristics of the current referendum, there is a strong possibility that the Atlanta referendum will be supported. Haas and Werbel's study, focused very specifically on the factors present in transportation referendums, looked at the correlation between a few contextual variables. If these variables coexist, it poses a significant obstacle to passing the referendum. However, it's hard to generalize findings from previous research because context is key. If a government (or some other entity) wants a transportation referendum to pass, there are certain things they should pay attention to and also things that the campaign should emphasize.

### **Recommendations:**

A number of tactics may be used to encourage the passage of a transportation referendum, addressing both the attitudinal and contextual variables which have been shown to influence voting behavior.

### **Targeting populations**

The following populations have been seen to be generally supportive of transportation referendums:

- Younger individuals
- Individuals on the liberal end of the spectrum
- Those who feel personally obligated to use public transportation
- Less affluent
- Urban dwellers

Because individuals with these characteristics may be more likely to support a transportation referendum, campaign efforts should target these populations and provide them with the messaging which demonstrates how the referendum serves their interests.

On the other hand, there are a number of characteristics shared by those who are in opposition to the referendum:

- Older in age
- Less liberal
- Do not feel a personal obligation to use public transportation
- Are more affluent
- Live farther out from the city center

In targeting these voters, marketing should appeal to their priorities: expanding travel choices and reducing dependency on foreign oil. Also, marketing should de-emphasize the following, which are ranked as “least important”: protecting the environment; reducing traffic congestion; creating revenue (for the government).

Both those in opposition to and in support of the referendum felt that expanding travel choices was important if the referendum is to be effective. Therefore, the aspects of the referendum which help to expand travel choices should be heavily emphasized, since all audiences will respond to this messaging.

#### Emphasizing Accountability

The research provided by Transform Metro Atlanta and Haas and Werbel demonstrate that voters are heavily concerned with accountability. In fact, if the local government or transportation entity is not well-regarded, this may threaten the chance of the referendum passing. The public must feel that the tax revenue will be responsibly managed and that the transportation projects will deliver the results that the public was promised.

In order to address these concerns, several things should be done. Accountability needs to be ensured at both the level of funding allocation as well as project implementation. A Citizen Oversight Committee of non-elected officials will be assembled, to ensure that projects are completed on time and on budget. This committee should make regular, transparent reports to the public about the status of tax revenue and projects. Secondly, the 15% which is available to each county and the municipalities in the counties should select projects in a very transparent process and create a mechanism by which they can be held accountable to the public for wisely investing the funding.

In addition to responsible management of funds, the public is also concerned about transportation projects being responsibly and wisely executed. The progress of regional projects should be clearly communicated to the public, as well as the benefits that they are delivering, to ensure them that that their money is being wisely spent.

Perhaps, in addition to the oversight committee, they should put additional mechanisms in place for involving the public, to allow them to provide oversight but also to educate them on transportation and planning issues. This could address the public's concern about entities being unreliable or inept; by

providing the public with a way to provide input, as well as educate them through involvement, they may begin to build more trust for these entities.

## Conclusion

Many regions are facing transportation challenges especially in terms of funding, and turning to local tax revenue to support it is also rising in popularity. It is thus important to understand the variables at play in increasing public acceptability. Because transportation has such a large impact on environmental issues, it is also important to see if environmental concern can be leveraged to increase support for such a policy. This study investigated just this matter, looking at not only contextual variables (through the lens of political science) as well as behavioral (drawing on psychological research).

The following trends can be seen in the data in this study:

### Those who support the transportation referendum:

- live closer to the city center
- are highly educated
- feel a personal obligation to use public transportation
- feel obligated to bear the environment in mind in daily behavior
- feel that protecting the environment is a guiding value in life
- are less affluent than those who do not support the referendum
- prioritize the following:
  1. protecting the environment
  2. reducing traffic congestion
  3. expanding travel choices

### Those who oppose the transportation referendum:

- may live farther from the urban core
- do not feel a personal obligation to use public transportation
- feel obligated to bear the environment in mind in daily behavior
- feel that protecting the environment is a guiding value in life
- are more affluent
- prioritize the following:
  1. expanding travel choices
  2. reducing dependency on foreign oil

Literature from the fields of political science and psychology show that values influence attitude and thus behavior, but context also plays a significant role in voting. The literature, specifically Haas and

Werbel's studies, show that voting on transportation referendums is a complex matter, highly influenced by context variables. Important contextual variables relevant to this topic include:

- Projects which will receive funding, and how accountable the spending process is
- The benefits and costs – personal, social, environmental, economic
- Reputation of local agencies – administration and existing facilities
- The involvement of the public and local officials in the process
- Campaigns and marketing
- Nature of the proposed and of existing tax

This study attempted to determine if environmental values influenced voting. While not definitive, the data most strongly show that a feeling of obligation to use transit is seen in those who support the tax, but those who do not support it do not share those feelings. The study also showed a marked difference between priorities. The rankings of priorities show that this issue is not an environmental issue, or not as important as other issues, to some people.

What this study was not able to determine is participants' feelings on some of the issues raised by Haas and Werbel, who research is by far the most illuminative on the subject of transportation referendum voting. It might have been helpful to include the following questions in the survey:

- Which types of transportation projects do you support?
- What is your impression of the local transportation agencies?
- What is your opinion of the TIA process?
- Were you involved in the TIA process?
- What do you think about the proposed tax and existing taxes?

As seen in the literature, voting behavior is a very complex matter. Haas and Werbel conclude by saying that even a solid understanding of the contextual variables does not guarantee support in the face of a well-organized opposition. This heavily influences voters' awareness and opinion. Moreover, context is always changing, making it difficult to predict with complete accuracy. But, by looking further into the

questions raised here, policies can be developed that are supported by the public and have lasting, positive impact on the health of regions.

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## Appendix A.

**1. Are you (or do you plan to be) a registered voter in the 10-county Atlanta region?**

- ☐ Yes
- ☐ No

**2. Please indicate how often you partake in the following behaviors, where 1 = never and 4 = always.**

	Never	Sometimes	Often	Always
I use public transportation to get to work or school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use public transportation to get to entertainment activities (movies, restaurants).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use public transportation to get to non-work related appointments (doctor office).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I bike or walk to get to work or school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I bike or walk to get to entertainment activities (movies, restaurants).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I bike or walk to non-work related appointments (doctor office).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**3. Please indicate on a scale of 1-5, where 1 = strongly disagree and 5 = strongly agree, the degree to which each of the following influence your travel choices (e.g. whether to take a public transportation, walk, bike or drive to a location).**

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
A close or easily accessible a bus stop/MARTA is to my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A bus that easily travels from my home to the metro stop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A safe and secure sidewalk to travel on from my home to transportation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The price of oil and gas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**4. The idea of implementing a small increase on the sales tax in order to pay for transportation in the metro Atlanta region is up for a vote in 2012. Supporters of the idea say that it will eliminate traffic congestion in the Atlanta region. Opponents of this idea are reluctant to pay an additional tax and doubt whether the cost of the tax is worth the alleged benefit that the transportation projects will bring to the region. Do you favor or oppose this idea?**

- ☐ Favor
- ☐ Oppose

**5. In order for this program to be effective, how much do you agree that each of the following areas should be addressed?**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Protecting the environment (e.g. reduced greenhouse gases)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing traffic congestion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saving money (for you personally)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creating revenue (for the government)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving health (air quality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Expanding travel choices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving the economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing dependency on foreign oil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing travel time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhancing communities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. Now, please prioritize from 1st to 11th (1st = the most important) which of the following areas are important in order for this program to be effective.**

[illegible]

## Neighborhood questions

**7. As a resident who may one day live in a neighborhood where a new Atlanta region light rail stop will be built, to what extent do you agree that this new metro stop will increase or decrease each of the following (1 = greatly decrease and 5 = greatly increase).**

	Greatly decrease	Decrease	No change	Increase	Greatly increase
Traffic congestion in your neighborhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air quality in your area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parking options	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parking costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing options or types at a range of rents or purchase prices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The sales price of homes or condominiums	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Racial and ethnic diversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Income levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tutoring businesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bus riding options	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bike lanes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walkable sidewalks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor offices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hospitals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pharmacies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Retail clothing stores	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grocery stores (fresh food)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restaurants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parks & Playgrounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sports fields & Swimming pools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share any further comments here:

## About you

**8. Please rate the importance of each of the following as a measure of how much each is a guiding value in your life.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Protecting the environment, preserving nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unity with nature, fitting into nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respect the earth, harmony with other species.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A world at peace, free of war and conflict	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social justice, correcting justice and care for the weak.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equality, equality opportunity for all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honoring parents and elders, showing respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family security, security for loved ones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-discipline, self-restraint, resistance to temptation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Authority, the right to lead or command	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Influential, having an impact on people and events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wealth, material possessions, money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A varied life, filled with challenge, novelty and change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An exciting life, stimulating experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Curious, interested in everything, exploring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**9. Please indicate the degree to which you agree or disagree with the following statements, where 1 = strongly disagree and 5 = strongly agree.**

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
We are approaching the limit of the number of people the earth can support.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When humans interfere with nature it often produces disastrous consequences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human ingenuity will insure that we do NOT make the earth unlivable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans are severely abusing the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The earth has plenty of natural resources if we just learn how to develop them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plants and animals have as much right as humans to exist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Despite our special abilities humans are still subject to the laws of nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The earth is like a spaceship with very limited room and resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans were meant to rule over the rest of nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The balance of nature is very delicate and easily upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans will eventually learn enough about how nature works to be able to control it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If things continue on their present course, we will soon experience a major ecological catastrophe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel jointly responsible for the traffic problem in Atlanta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel jointly responsible for the air quality problem in Atlanta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel jointly responsible for the greenhouse gas emissions in Atlanta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that using public transportation can make a positive difference nationally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My contribution to the problems associated with driving cars is negligible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not only are the government and industry responsible for the problem of greenhouse gas emissions, but I am too.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a strong personal obligation to take public transportation if it is available to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel personally obliged to use public transportation as much as I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that access to public transportation is a right and that I can use as much as I want, as long as I am willing to pay for it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel morally obliged to use public transit, regardless of what others do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty when I don't take public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People like me should do everything they can to take public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a metro stop was near me, I would feel morally obliged to take it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not feel guilty at all when I drive my car	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



I feel obliged to bear in mind the environment and nature in my daily behavior



I would be a better person if I took public transportation



## About you II

### 10. Sex

- ☐ Male
- ☐ Female

### 11. Age

- ☐ 18-29
- ☐ 30-44
- ☐ 45-59
- ☐ 60+

### 12. What is your ethnicity? Please check all the apply:

- ☐ American Indian
- ☐ Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Other

### 13. What zip code do you reside in?

### 14. Income

- ☐ Less than \$25k
- ☐ \$25-50k
- ☐ \$50-100k
- ☐ \$100-200k
- ☐ \$200-\$500k
- ☐ \$500k+

### 15. What is the highest degree you have received?

### 16. How many years of school have you completed?

### 17. What political party do you belong to?

- ☐ Democrat
- ☐ Republican
- ☐ Green
- ☐ Independent
- ☐ Libertarian
- ☐ Other

### 18. Please indicate the degree of your political affiliation below, where 1 = very liberal and 5 = very conservative.

	Very Liberal	Liberal	Neither Liberal or Conservative	Conservative	Very Conservative
Very Liberal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liberal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Somewhat Liberal and Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 19. Do you rent or own the place where you live?

- ☐ Rent
- ☐ Own

Other (please specify)

### 20. If you rent, how long have you rented for?

### 21. If you own, how long have you owned for?

### 22. How many people live in your household?